

**BBCCT-105**

**ASSIGNMENT BOOKLET**

**Bachelor's Degree Programme  
B.Sc. Hons in Biochemistry (BSCBCH)**

**PROTEINS**

**Valid from January, 2025 to December, 2025**



**School of Sciences  
Indira Gandhi National Open University  
Maidan Garhi  
New Delhi-110068.**

Dear Student,

Please read the section on assignments in the Programme Guide for Core Courses that we sent you after your enrolment. A weightage of 30 per cent, as you are aware, has been earmarked for continuous evaluation, **which would consist of one tutor-marked assignment** for this course. The total marks of all the parts are 100, of which 35% are needed to pass it.

### Instructions for Formatting Your Assignments

Before attempting the assignment please read the following instructions carefully:

- 1) On top of the first page of your answer sheet, please write the details exactly in the following format:

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**ROLL NO.:** .....

**NAME:** .....

**ADDRESS:** .....

.....

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**COURSE CODE:** .....

**COURSE TITLE:** .....

**ASSIGNMENT NO.:** .....

**STUDY CENTRE:** ..... **DATE:** .....

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**PLEASE FOLLOW THE ABOVE FORMAT STRICTLY TO FACILITATE EVALUATION AND TO AVOID DELAY.**

- 2) Use only foolscap size writing paper (but not of very thin variety) for writing your answers.
- 3) Leave 4 cm margin on the left, top and bottom of your answer sheet.
- 4) Your answers should be precise.
- 5) The assignment answer sheets are to be submitted to your Study Centre as per the schedule made by the study centre. **Answer sheets received after the due date shall not be accepted.**

**We strongly suggest that you retain a copy of your answer sheets.**

- 6) This assignment is **valid from January 2025 to December, 2025** and submit it as per the instructions given in the Programme Guide.
- 7) **You cannot fill the exam form for this course** till you have submitted this assignment.

We wish you good luck.

ASSIGNMENT  
**PROTEINS**

**Course Code: BBCCT-105**  
**Assignment Code: BBCCT-105/TMA/2025**  
**Maximum Marks: 100**

Answer all the questions given below.

1. Define amino acids and classify them based on their chemical structure and properties. 5M
2. Discuss the significance of peptide bonds in protein structure. Include an explanation of how peptide bonds are formed. 5M
3. Explain the principle and applications of dialysis and lyophilization in protein biochemistry. 10M
4. List and explain the different methods of protein extraction from cells. 10M
5. Explain how protein folding is related to diseases such as Alzheimer's or prion disorders. 10M
6. Illustrate the steps involved in sequencing a protein and highlight the importance of this process. 10 M
7. Explain the four levels of protein structure and the types of bonds involved in maintaining each level. 10M
8. Illustrate the structural differences between globular and fibrous proteins with examples. 5M
9. Classify proteins based on their functions and provide examples for each category, such as enzymes, structural proteins, and hormones. 5M
10. Describe the role of storage proteins such as ferritin and ovalbumin in biological systems. How do their structures support their functions? 10 M
11. Explain the mechanism of action of contractile proteins like actin and myosin in muscle contraction. What structural features enable their function? 10 M
12. A. Draw Ramachandran plot and explain its importance. 5M  
B. Explain the N-terminal protein sequencing method 5M